

REMARKS/ARGUMENTS

35 USC § 112, second paragraph

Claims 11 and 20 were rejected under 35 USC § 112, second paragraph, as being indefinite for reciting "at least one of ethanol and carbon dioxide". The applicant disagrees and refers to the prior submitted arguments. Nevertheless, to advance prosecution, the applicant amended the claims as suggested by the office.

35 USC § 102(b)

Claims 1-5, 8-9, and 14-19 were rejected under 35 USC § 102(b) as being anticipated by Romanow et al. (1969, Effect of synthetic cytokinins...). The applicant appreciates the evident in-depth search, nevertheless respectfully disagrees, especially in view of the amendments made herein.

Amended claims 1 and 14 (and dependent claims 2-5, 8-9, and 15-19) expressly require that the cytokinin must be "*...effective to increase conversion of one or more products in the fermentation medium to a desired product by the microorganism as compared to conversion in a medium without the cytokinin-containing preparation using otherwise identical fermentation conditions...*" Support for the amendments can be found, *inter alia*, on page 4, lines 1-19, and page 15, line 1 to page 16, line 7.

The Cited Reference Fails To Teach Each And Every Element Of The Claims

As pointed out before, anticipation under 35 U.S.C. § 102 requires the presence in a single prior art disclosure of *each and every element of a claimed invention*. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2D (BNA) 1051, 1053 (Fed. Cir. 1987); *Carella v. Starlight Archery*, 804 F.2d 135, 138, 231 U.S.P.Q. (BNA) 644, 646 (Fed. Cir.), *modified on reh'd*, 1 U.S.P.Q.2D (BNA) 1209 (Fed. Cir. 1986); *[**7] Jamesbury Corp. v. Litton Indus. Prods., Inc.*, 756 F.2d 1556, 1560, 225 U.S.P.Q. (BNA) 253, 256 (Fed. Cir. 1985); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458,

221 U.S.P.Q. (BNA) 481, 485 (Fed. Cir. 1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 U.S.P.Q. (BNA) 193, 198 (Fed. Cir. 1983).

With respect to the amended claims, it is noted that the requirement that the cytokinin must be "**...effective to increase conversion of one or more products in the fermentation medium to a desired product by the microorganism as compared to conversion in a medium without the cytokinin-containing preparation using otherwise identical fermentation conditions...**" is neither present (literally or inherently) nor suggested in any form. Therefore, amended claims 1-5, 8-9, and 14-19 should not be deemed anticipated by Romanow et al.

Alleged Inherency In The Rejection Of Claims 8 And 9 Lacks Factual Support

With further respect to the examiner's argument in the rejection of claims 8 and 9 that the activation of AMPK or the increase of a carbohydrate would be inherent since the cytokinin of Romanow et al would stimulate growth in the microorganism, it is noted that such assertion must be supported in fact.

In relying upon the theory of inherency, the **examiner must provide a basis in fact** and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic **necessarily flows from the teachings** of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). **The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.** *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); see also *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter **is necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). In the instant case, the office failed to provide evidence to establish a link between stimulation of growth and activation of AMPK/increase in glucose uptake. Therefore, the rejection of claims 8 and 9 is improper.

35 USC § 103

Claims 6-7, 10-13, and 20 were rejected under 35 USC § 103 as being obvious over Romanow et al. in view of Challice (1985, Purification of cytokinins...). Again, the applicant respectfully disagrees, especially in view of the amendments made herein.

As noted above, amended claims 1 and 14 (and dependent claims 2-5, 8-9, and 15-19) expressly require that the cytokinin must be "**...effective to increase conversion of one or more products in the fermentation medium to a desired product by the microorganism as compared to conversion in a medium without the cytokinin-containing preparation using otherwise identical fermentation conditions...**"

The Cited References Fails to Teach All Claimed Elements

It should be pointed out that to establish prima facie obviousness of a claimed invention, **all the claim limitations must be taught or suggested by the prior art.** In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). In the instant case, there is absolutely no teaching or suggestion of the above elements in the amended claims in Romanow and Challice, alone or in combination. Consequently, the rejection should be withdrawn in view of the amendments presented herein.

Romanow Teaches Away From The Claimed Subject Matter

It is well established that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). In the instant case, Romanow teaches away from the claimed limitations and Challice fails to remedy this defect.

More specifically, and as properly recognized by the office, Romanow teaches that any increase in carotenoids is due to an increase in the cell number rather than due to an increase in fermentation (as defined by the applicant and as reflected in the claims). See e.g., last sentence on page 247, second paragraph on page 248, and send last sentence on page 248. Challice is

entirely silent on the issue of fermentation and merely teaches that cytokinins can be isolated from barley using PVP column chromatography and subsequent reverse-phase separation by HPLC.

The Cited References Lack Suggestion or Motivation

It should further be pointed out that "...**particular findings** must be made **as to the reason** the skilled artisan, with no knowledge of the claimed invention, would have selected these components **for combination in the manner claimed...**" (In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000)), and that "...there must be some **motivation, suggestion, or teaching of the desirability** of making the specific combination that was made by the applicant..." (In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998)). Even in a post-KSR era, in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, **it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.** (USPTO Memo by Focarino of May 3, 2007).

None of these critical requirements were met in the rejection of claims 6-7, 10-13, and 20. Romanow is concerned with cell growth and pigment formation in *Rhodospirillum* as a function of selected cytokinins, while Challice is concerned with separation of cytokinins from barley seedlings. Yes, the person of ordinary skill in the art could have looked at Challice to use a plant extract or *Hordeum* as a source for cytokinins, but there is no motivation in either of the references to produce a fermentation medium as claimed in claims 6 and 7.

Regarding the rejection of claims 10-13, the office appears to argue that while Romanow teaches the effect of cytokinins on *Rhodospirillum* for growth stimulation, it would be obvious to those skilled in the art that "...an organism such as *Saccharomyces* may be equally affected and as a result the processes involving *Saccharomyces* such as alcohol fermentation and bread dough leavening would benefit from this effect..." Such argument is entirely unsupported.

The office is reminded that "...deficiencies of the cited references cannot be remedied by the [Office's]...general conclusions..." The Office's findings must extend to all material facts and must be documented on the record, lest the "haze of so-called expertise" acquire insulation

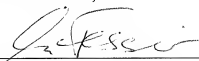
from accountability. "Common knowledge and common sense," even if assumed to derive from the agency's expertise, do not substitute for authority when the law requires authority (in *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697).

In the instant case, the examiner appeared to have recognized that such argument was ill supported by stating "...*Saccharomyces* may be equally affected..." It should be noted that the increase in cell growth was observed in a phototropic prokaryotic organism, whereas the alleged equal effect is in a heterotrophic eukaryotic organism. While the applicant would have possibly agreed with the examiner had claim 10 recited *Phaeosporillum*, *Azospirillum*, or *Roseospira* (all members of the same family together with *Rhodospirillum*) instead of *Sachharomyces*, the applicant respectfully disagrees with the alleged cross-kingdom effect. Not only is Romanow's organism a bacterium rather than a eukaryotic organism, but *Rhodospirillum* is ordinarily a photosynthetic organism. The office's extension of the prior arguments to cover claims 11-13 is thus over-reaching and not supported. Consequently, at least for these reasons and amendments, the rejection of claims 6-7, 10-13, and 20 as being obvious over Romanow et al. in view of Challice should be withdrawn.

In view of the present amendments and arguments, the applicant believes that all claims are now in condition for allowance. Therefore, the applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
Fish & Associates, PC

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By 
Martin Fessenmaier, Ph.D.
Reg. No. 46697

Fish & Associates, PC
2603 Main Street, Suite 1050
Irvine, CA 92614-6232
Telephone (949) 253-0944
Fax (949) 253-9069